



MCSE Guide to Microsoft® Windows® 2000 Professional



MCSE Guide to Microsoft® Windows® 2000 Professional

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Preface

Welcome to the *MCSE Guide to Windows 2000 Professional*! This book offers you real-world examples, interactive activities, and hundreds of hands-on projects that reinforce key concepts and help you prepare for the Microsoft certification exam #70-210: *Installing, Configuring, and Administering Microsoft Windows 2000 Professional*. This book also features troubleshooting tips for solutions to common problems that you will encounter in the realm of Windows 2000 Professional administration.

This book offers in-depth study of all the salient functions and features of installing, configuring, and maintaining Windows 2000 Professional as a client operating system. Throughout the book, we provide pointed review questions to reinforce the concepts introduced in each chapter and to help prepare you for the Microsoft certification exam. In addition to the review questions, we provide detailed hands-on projects that let you experience firsthand the processes involved in Windows 2000 Professional configuration and management. Finally, to put a real-world slant on the concepts introduced in each chapter, we provide case studies to prepare you for situations that must be managed in a live networking environment.

THE INTENDED AUDIENCE

This book is intended to serve the needs of those individuals and information systems professionals who are interested in learning more about Microsoft Windows 2000 Professional, as well as individuals who are interested in obtaining Microsoft certification on this topic. These materials have been specifically designed to help individuals prepare for this certification exam.

Chapter 1, “A First Look at Windows 2000 Professional,” introduces the Windows 2000 networking family and describes the major features of the Windows 2000 environment. In addition, it explores the architecture of Windows 2000. Finally, it defines the minimal system requirements for Windows 2000 Professional and introduces the two major networking models under which Windows 2000 can be used.

In **Chapter 2**, “Installing Windows 2000 Professional,” we discuss how to decide whether to perform an upgrade or a fresh installation of Windows 2000 Professional. We also explore how to boot using multiple operating systems. In addition, we examine installation options such as unattended installations; whether to install using Windows 2000 setup disks, CD-ROM, or across the network; and, finally, we describe the various Setup and advanced installation options.

Chapter 3, “Using the MMC, Task Scheduler, and Control Panel,” examines the tools used to manage Windows 2000 Professional, namely, the Microsoft Management Console (MMC), Task Scheduler, and Control Panel applets. These tools are used to install and configure new hardware, create hardware profiles for changing system configurations, as well as configure PC cards and multiple displays.

In **Chapter 4**, “Managing Windows 2000 File Systems and Storage,” we explore the differences between basic and dynamic storage and discuss the drive configurations supported by Windows 2000. This chapter also introduces file systems supported by Windows 2000 Professional: FAT, FAT32, and NTFS. Additionally, we describe permissions, sharing, and other security issues related to file systems. From an administrative standpoint, we also discuss drive, volume, and partition maintenance and administration under Windows 2000.

We introduce you to the concepts of users, groups, profiles, and policies in **Chapter 5**, “Users, Groups, Profiles, and Policies.” This discussion includes setting up, naming, and managing local users and groups and default user and group accounts. From there, we examine the Windows 2000 Professional logon authentication process. This chapter concludes with in-depth coverage of the creation and management of user accounts, profiles, and local security policies.

Chapter 6, “Windows 2000 Security and Access Controls,” teaches you about the Windows 2000 security model and the key role of logon authentication. We show you how to customize the logon process, discuss domain security concepts, and provide additional instructions for setting up the local computer policy. This chapter also shows you how to enable and use auditing. We conclude this discussion on security with details on encrypting NTFS files, folders, or drives using the encrypting file system (EFS).

We enter the world of networking in **Chapter 7**, “Network Protocols.” Here, you’ll explore the protocols supported by Windows 2000. In addition, we detail the intricacies of configuring and managing TCP/IP.

Chapter 8, “Internetworking with Novell NetWare,” explores the features included with Windows 2000 Professional to interact with Novell networks. This chapter discusses connecting Windows 2000 Professional computers to NetWare servers. In addition, we examine the steps necessary to install and configure NWLink and the Client Service for NetWare (CSNW).

We examine remote access to Windows 2000 Professional in **Chapter 9**, “Remote Access Service.” You’ll learn how to use remote access under Windows 2000, configure various RAS connection types, and troubleshoot RAS connection problems.

In **Chapter 10**, “Printing,” we discuss Windows 2000 print terminology and architecture, and examine the special features of the Windows 2000 print system. We provide hands-on instruction for creating and managing printers and printer permissions. This chapter concludes with a discussion on troubleshooting printing problems.

Chapter 11, “Performance Tuning,” gives you the information you need to understand the performance and monitoring tools of Windows 2000. You’ll learn how to create a Counter log for historical analysis, configure Alert events to warn of performance problems, and establish a baseline of normal system operation against which to measure Windows 2000 Professional performance. Finally, we discuss how to detect and eliminate bottlenecks to keep your system running as efficiently as possible.

In **Chapter 12**, “Windows 2000 Application Support,” we discuss how to deploy DOS, Win16, OS/2, and POSIX applications. Finally, we explore how to fine-tune the application environment for DOS and Win16.

Chapter 13, “Working with the Windows 2000 Registry,” discusses the function and structure of the Registry, which is the underlying database that stores system configuration information in Windows 2000. This chapter describes the purpose of each of the five Registry keys, how to use the Registry editing tools, defines the fault-tolerant mechanisms for the Registry, and provides information on how to back up and restore the Registry.

In **Chapter 14**, “Bootting Windows 2000,” we explain the steps taken by Windows 2000 Professional during the boot process. This discussion includes the operation of the key Windows 2000 startup files, the boot options offered via the Advanced Options Menu, and how to troubleshoot system restoration by using Safe Mode. In addition, we explore how to edit the Boot.ini file to manipulate the boot process, and how multiboot configurations are created and function.

We introduce you to disaster protection and recovery concepts in **Chapter 15**, “Windows 2000 Professional Disaster Protection and Recovery.” Here, you’ll learn how to back up data and settings on Windows 2000 Professional and recover a Windows 2000 Professional client’s applications and data. Additionally, we introduce IntelliMirror technology and describe its key features, as well as remote operating system installation, and how it can be used with IntelliMirror to recover a PC remotely. Finally, we show you how to create and use an Emergency Repair Disk, the Recovery Console, and the Safe Mode options for starting Windows 2000 Professional.

This book concludes with **Chapter 16**, “Troubleshooting Windows 2000 Professional.” Here, we examine how to collect documentation about your systems to aid in troubleshooting and preventing problems, and review common sense approaches to troubleshooting. In addition, we discuss how to troubleshoot general problems with Windows 2000 and use some of the troubleshooting tools of Windows 2000 Professional.

FEATURES

Many features in this book are designed to improve its pedagogical value and aid you in fully understanding Windows 2000 Professional concepts.

- ◆ **Chapter Objectives.** Each chapter begins with a detailed list of the concepts to be mastered within that chapter. This list provides you with a quick reference to the contents of the chapter as well as a useful study guide.
- ◆ **Illustrations and Tables.** Numerous illustrations of screens and components help you visualize common setups, theories, and architectures. In addition, tables provide details and comparisons of both practical and theoretical information.
- ◆ **Chapter Summaries.** The text of each chapter concludes with a summary of the concepts it has introduced. These summaries provide a helpful way to recap and revisit the ideas covered in each chapter.
- ◆ **Key Terms.** Following the Chapter Summary, a list of key Windows 2000 terms and their definitions encourages proper understanding of the chapter's key concepts and provides a useful reference.
- ◆ **Review Questions.** End-of-chapter assessments begin with a set of review questions that reinforce the ideas introduced in each chapter. These questions not only show you whether you have mastered the concepts, but also are written to help prepare you for the Microsoft certification examination.
- ◆ **Hands-on Projects.** Although it is important to understand the theory behind technology, nothing can improve upon real-world experience. Each chapter provides a series of exercises aimed at giving students hands-on implementation experience.
- ◆ **Case Projects.** Finally, each chapter closes with a section that proposes certain situations. You are asked to evaluate the situations and decide upon the course of action to be taken to remedy the problems described. This valuable tool will help you sharpen your decision-making and troubleshooting skills, which are important aspects of network administration.

TEXT AND GRAPHIC CONVENTIONS

Wherever appropriate, additional information has been added to this book to help you better understand what is being discussed in the chapter. Icons throughout the text alert you to additional materials. The icons used in this book are described here:



Tips give extra information on how to attack a problem, time-saving shortcuts, or what to do in certain real-world situations.



Important information about potential mistakes or hazards is highlighted with a Caution icon.



Each step-by-step Hands-on Project is marked by the Hands-on Project icon.



Case Project icons mark scenario-based assignments in which you are asked to implement independently the information you have learned.

INSTRUCTOR'S MATERIALS

The following supplemental materials are available when this book is used in a classroom setting. All of the supplements available with this book are provided to the instructor on a single CD-ROM.

Electronic Instructor's Manual. The Instructor's Manual that accompanies this textbook includes:

- ◆ Additional instructional material to assist in class preparation, including suggestions for lecture topics, suggested lab activities, tips on setting up a lab for the hands-on assignments, and alternative lab setup ideas in situations where lab resources are limited.
- ◆ Solutions to all end-of-chapter materials, including the Review Questions, Hands-on Projects, and Case Projects.

Course Test Manager 1.3. Accompanying this book is a powerful assessment tool known as the Course Test Manager. Designed by Course Technology, this cutting-edge Windows-based testing software helps instructors design and administer tests and pre-tests. In addition to being able to generate tests that can be printed and administered, this full-featured program also has an online testing component that allows students to take tests at the computer and have their exams automatically graded.

PowerPoint presentations. This book comes with Microsoft PowerPoint slides for each chapter. These are included as a teaching aid for classroom presentation, to make available to students on the network for chapter review, or to be printed for classroom distribution. Instructors, please feel at liberty to add your own slides for additional topics you introduce to the class.

STUDENT'S MATERIALS

Student case assignment files. The instructor's CD-ROM comes with student case assignment files for each chapter. These files contain the end-of-chapter Case assignments in electronic format so that students can enter their answers and submit them through e-mail, to a shared network folder, or print them for submission to the instructor.

Electronic glossary. An electronic glossary with hyperlinks is provided on the instructor's CD-ROM for distribution to each student, such as through a Web page or a shared network folder.

WHERE SHOULD YOU START?

This book is intended to be read in sequence, from beginning to end. Each chapter builds upon those that precede it, to provide a solid understanding of Windows 2000 Professional. After completing the chapters, you may find it useful to go back through the book and use the review questions and projects to prepare for the Microsoft certification test for Windows 2000 Professional. Readers are also encouraged to investigate the many pointers to online and printed sources of additional information that are cited throughout this book.

ACKNOWLEDGMENTS

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Michael Stewart: Thanks to my boss and co-author, Ed Tittel, for including me in this book series. To my parents, Dave and Sue, thanks for your love and consistent support. To Mark, it seems that the stars are stacked against us, our plans to hang always seem to get foiled! To HERbert, why is it that only an hour after I clip your nails they are sharp as needles again!?!? And finally, as always, to Elvis—I recently was blessed with a sighting of your holy visage, wait a sec, that was just Earlvis, darn.

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MICROSOFT WINDOWS 2000 PROFESSIONAL HARDWARE REQUIREMENTS

Following are the Microsoft defined minimum requirements to install and run Windows 2000 Professional:

- ◆ 166-MHz Pentium or higher microprocessor (P5 or equivalent compatible clone) or a Compaq Alpha processor with the latest firmware version installed (except for DECpc 150 AXP, DEC 2000-500, Multia, and AXPpci 33 processors)
 - ◆ 32 MB of RAM for Intel (64 MB or more recommended; 4 GB maximum) or 48 MB of RAM for Alpha (96 MB or more recommended; 8 GB maximum)
 - ◆ 2 GB hard disk with a minimum of 650 MB of free space
 - ◆ VGA or higher resolution monitor
 - ◆ Keyboard
 - ◆ Microsoft Mouse or compatible pointing device
 - ◆ A CD-ROM drive (12X or faster recommended)
 - ◆ A high-density 3.5-inch disk drive
 - ◆ A Windows 2000 compatible network adapter card and related cable
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